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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/728,301 | 12/04/2003 | Kouichi Numazawa | TS8066 (US) | 7085 |

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07/14/2006

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EXAMINER

LANG, AMY T

ART UNIT PAPER NUMBER

1714

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/728,301 | NUMAZAWA ET AL. | |
| | Examiner | Art Unit | |
| | Amy T. Lang | 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2-25-05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

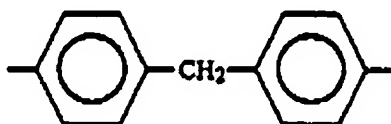
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, 17-19, 21-25, 28-32, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Naka (US 5,059,336).

US '336 discloses a grease composition comprised of a urea thickener in base oil (column 1, lines 5-10). The thickener is disclosed as a diurea compound or a mixture of at least two diurea compounds with the following formula:



where R1 is a divalent aromatic hydrocarbon residue and R2 and R3 are independently an alkyl or alkenyl group having 8 to 20 carbon atoms (column 2, lines 62-68; column 3, lines 1-11). The alkyl group is specifically disclosed as an octadecenyl group, which encompasses an oleyl component so that an unsaturated alkyl group inherently constitutes at least 20 mol % of the alkyl group (column 4, lines 13-25). The divalent aromatic hydrocarbon residue is further disclosed as having the formula:



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which is a diphenylmethane group (column 3, lines 47-65). Therefore, the urea thickener clearly overlaps compound (c) of the instant application. Furthermore, the thickening agent is present from 2 to 30 wt%, specifically 14 wt% in Example 2, based on the weight of the total composition (column 4, lines 48-51; Example 2, column 6).

US '336 also discloses additives in the composition including zinc dithiophosphate agents (column 5, lines 45-49). The composition is utilized as a lubricant for high speed roll bearing (column 1, lines 6-10). US '336 further discloses the high speed bearing as a bearing employing rollers or balls and rotating at a speed between 500 and 1000 rpm (column 5, lines 55-68). Therefore, the bearing clearly encompasses a sliding surface.

Therefore, Naka '336 anticipates the cited present claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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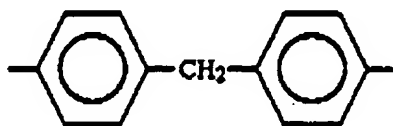
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-10, 17-19, 21-25, 28-32, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naka (US 5,059,336) in view of Ozaki (JP 06017080 A) and Naka (US 5,498,357).

US '336 discloses a grease composition comprised of a urea thickener in base oil (column 1, lines 5-10). The thickener is disclosed as a diurea compound or a mixture of at least two diurea compounds with the following formula:



where R1 is a divalent aromatic hydrocarbon residue and R2 and R3 are independently an alkyl or alkenyl group having 8 to 20 carbon atoms (column 2, lines 62-68; column 3, lines 1-11). The alkyl group is specifically disclosed as an octadecenyl group, which encompasses an oleyl component so that an unsaturated alkyl group inherently constitutes at least 20 mol % of the alkyl group (column 4, lines 13-25). The divalent aromatic hydrocarbon residue is further disclosed as having the formula:



which is a diphenylmethane group (column 3, lines 47-65). Therefore, the urea thickener clearly overlaps compound (a), (b), or (c) and mixtures of the three of the instant application. Furthermore, the thickening agent is present from 2 to 30 wt%,

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specifically 14 wt% in Example 2, based on the weight of the total composition (column 4, lines 48-51; Example 2, column 6).

US '336 is silent as to the mol % of the instantly claimed compound (a) to the total amount of (a) and (b).

JP '080 also discloses a urea grease composition comprised of a mixture of two diurea compounds. The first compound is disclosed with the formula $R_1NHCONHR_2NHCONHR_3$, where R_2 is a tolylene group and R_1 and R_3 are saturated alkyl groups with 16-18 carbons ([0004]). The second compound is disclosed with the formula $R_4NHCONHR_5NHCONHR_6$, where R_5 is diphenylmethane and R_4 and R_6 are each an alkyl group having 8 carbons ([0004]). The mol ratio of the second compound to the first is disclosed as 20-90 mol% ([0004]).

Although the first compound disclosed by JP '080 is different from the urea compound in US '336 or in the instant claims, US '357 discloses that these urea compounds are very similar. US '357 teaches that diurea compounds which are utilized as thickeners in grease compositions are prepared by a reaction between a diisocyanate and a monoamine (column 3, lines 11-44). This reaction then produces tolylene or diphenylmethane groups, which teaches that the two compounds are very similar and would inherently function the same (column 3, lines 45-56). It therefore would have been obvious to substitute the tolylene group for a diphenylmethane group in the first compound disclosed by JP '080. This would then overlap the instantly claimed mixture of compounds (a) and (b). JP '080, therefore, discloses a mixture of

two diurea compounds where the second compound to the first is in a mol ratio of 20-90 mol%, which clearly overlaps the range in the instant claim 1.

Since the combination JP '080 and US '357 discloses the instantly claimed mixture of compounds (a) and (b) with a mol ratio of 20-90 mol%, it would have been obvious to utilize this mol ratio in US '336.

US '336 also discloses additives in the composition including zinc dithiophosphate agents (column 5, lines 45-49). The composition is utilized as a lubricant for high speed roll bearing (column 1, lines 6-10). US '336 further discloses the high speed bearing as a bearing employing rollers or balls and rotating at a speed between 500 and 1000 rpm (column 5, lines 55-68). Therefore, the bearing clearly encompasses a sliding surface. Therefore, one of ordinary skill would thereby obtain the invention as set forth in the presently cited claims.

3. Claims 11-16, 20, 26, 27, 33, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naka (US 5,059,336) in view of Ozaki (JP 06017080 A) and Naka (US 5,498,357) and Hasegawa (US 5,854,183).

US '336, as disclosed in paragraph 2 is incorporated here by reference, discloses a urea grease composition comprised of diurea compounds used for lubricating a bearing.

JP '080, as disclosed in paragraph 2 is incorporated here by reference, also discloses a urea composition comprised of diurea compounds within the instantly claimed molar ratios.

US '357, as disclosed in paragraph 2 is incorporated here by reference, discloses that diphenylmethane and tolylene are very similar and would inherently function the same.

US '336 does not disclose a molybdenum additive. US '183 also discloses a urea grease composition comprised of diurea compound and base oil used in constant-velocity joints, which encompass a sliding surface (column 1, lines 6-10; column 2, lines 5-45). Specific additives are disclosed in the composition including molybdenum dithiophosphate and molybdenum dithiocarbamate (column 8, lines 10-14). These additives effectively produce an economically favorable machine and demonstrate excellent performance characteristics (column 10, lines 19-38). It therefore would have been obvious to add molybdenum dithiophosphate and molybdenum dithiocarbamate in the composition disclosed by US '336 to produce more efficient results. Therefore, one of ordinary skill would thereby obtain the invention as set forth in the presently cited claims.

4. Claims 1-4, 17, 18, 21-23, 28-30, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (JP 02077494) in view of Naka (US 5,498,357).

JP '494 discloses a urea grease composition comprised of two kinds of diurea compounds (see abstract). The first compound is disclosed with the formula: $R_1NHCONHR_2NHCONHR_3$, where R_2 is bitolyene and R_1 and R_3 are each an unsaturated alkyl group having 1 to 18 carbon atoms (see abstract; claim 1). Therefore, the unsaturated alkyl group inherently constitutes more than 20 mol% of the alkyl group.

The second compound is disclosed with the formula: $R_4NHCONHR_5NHCONHR_6$, where R_5 is diphenylmethane and R_4 and R_6 are each a saturated alkyl having 8 carbons (see abstract). R_1 and R_3 are further disclosed of an octadecyl group, which encompasses an oleyl component (page 7, lines 25-26). The ratio of the two compounds is disclosed as 90-20 mol% of the first compound to 20-90 mol% of the second compound, which clearly overlaps the instantly claimed range of the instant compounds (a) and (b) (see abstract). Furthermore, the amount of urea thickener added to base oil is 5-20 wt% (see abstract).

Although the first compound disclosed by JP '494 is different from the urea compound in the instant claims, US '357 discloses that these urea compounds are very similar. US '357 discloses that diurea compounds which are utilized as thickeners in grease compositions are prepared by a reaction between a diisocyanate and a monoamine (column 3, lines 11-44). This reaction then produces tolylene or diphenylmethane groups, which teaches that the two compounds are very similar and would inherently function the same (column 3, lines 45-56). It therefore would have been obvious to substitute the bitolyene group for a diphenylmethane group in the first compound disclosed by JP '494.

Therefore, the combination of JP '494 and US '357 discloses a mixture of two diurea compounds, where the first compound overlaps the instant compound (b) and the second compound overlaps the instant compound (a). The urea composition, as disclosed by JP '494, is disclosed in sliding surfaces and bearing mechanisms (page 1, line 42 through page 2, line 1).

Therefore, one of ordinary skill would thereby obtain the invention as set forth in the presently cited claims.

5. Claims 11-16, 20, 26, 27, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (JP 02077494) in view of Naka (US 5,498,357) and Hasegawa (US 5,854,183).

JP '494, as disclosed in paragraph 4 is incorporated here by reference, discloses a urea grease composition comprised of diurea compounds used for lubricating a bearing or sliding surface.

US '357, as disclosed in paragraph 4 is incorporated here by reference, discloses that diphenylmethane and tolylene are very similar and would inherently function the same.

JP '494 does not disclose a molybdenum additive. US '183 also discloses a urea grease composition comprised of diurea compound and base oil used in constant-velocity joints, which encompass a sliding surface (column 1, lines 6-10; column 2, lines 5-45). Specific additives are disclosed in the composition including molybdenum dithiophosphate and molybdenum dithiocarbamate (column 8, lines 10-14). These additives effectively produce an economically favorable machine and demonstrate excellent performance characteristics (column 10, lines 19-38). It therefore would have been obvious to add molybdenum dithiophosphate and molybdenum dithiocarbamate in the composition disclosed by JP '494 to produce more efficient results. Therefore, one

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of ordinary skill would thereby obtain the invention as set forth in the presently cited claims.

6. Claims 5-10, 19, 24, 25, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (JP 02077494) in view of Naka (US 5,498,357) and Hasegawa (US 5,854,183) and Ozaki (US 5,585,336).

JP '494, as disclosed in paragraph 4 is incorporated here by reference, discloses a urea grease composition comprised of diurea compounds used for lubricating a bearing or sliding surface.

US '357, as disclosed in paragraph 4 is incorporated here by reference, discloses that diphenylmethane and tolylene are very similar and would inherently function the same.

US '183, as disclosed in paragraph 5 is incorporated here by reference, discloses that an additive of molybdenum dithiophosphate and molybdenum dithiocarbamate would produce more efficient results.

JP '494 does not disclose the addition of a zinc additive in the urea grease composition. US '336 also discloses an urea grease composition with molybdenum dithiophosphate and molybdenum dithiocarbamate additives (column 2, lines 25-31, column 3, lines 12-17). Us '336 further teaches that the addition of zinc dithiophosphate when used in combination with molybdenum dithiophosphate and molybdenum dithiocarbamate produce extremely excellent results (column 2, lines 25-45, column 3, lines 28-32). It therefore would have been obvious to also add a zinc dithiophosphate

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additive to the composition disclosed by JP '494. Therefore, one of ordinary skill would thereby obtain the invention as set forth in the presently cited claims.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy T. Lang whose telephone number is 571-272-9057. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ATZ
07/06/2006


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